



RAW SEQUENCE LISTING ERROR REPORT

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Application Serial Number: 10/076,839
Source: OIPE
Date Processed by STIC: 3-4-2002

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FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.

PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)

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1. EFS-Bio (<<http://www.uspto.gov/ebc/efs/downloads/documents.htm>> , EFS Submission User Manual - ePAVE)
2. U.S. Postal Service: U.S. Patent and Trademark Office, Box Sequence, P.O. Box 2327, Arlington, VA 22202
3. Hand Carry directly to:
U.S. Patent and Trademark Office, Technology Center 1600, Reception Area, 7th Floor, Examiner Name, Sequence Information, Crystal Mall One, 1911 South Clark Street, Arlington, VA 22202
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Revised 01/29/2002



OIPE

RAW SEQUENCE LISTING

DATE: 03/04/2002

PATENT APPLICATION: US/10/076,839

TIME: 14:56:13

Input Set : A:\PH-1176 (Sequence Listing).txt

Output Set: N:\CRF3\03042002\J076839.raw

3 <110> APPLICANT: Japan International Research Center for Agricultural Sciences

5 <120> TITLE OF INVENTION: Full-length Genomic RNA of Papaya Leaf-Distortion Mosaic

Virus

7 <130> FILE REFERENCE: PH-1176

C--> 9 <140> CURRENT APPLICATION NUMBER: US/10/076,839

C--> 9 <141> CURRENT FILING DATE: 2002-02-15

9 <150> PRIOR APPLICATION NUMBER: JP 2001-040523

10 <151> PRIOR FILING DATE: 2001-02-16

12 <160> NUMBER OF SEQ ID NOS: 4

14 <170> SOFTWARE: PatentIn Ver. 2.0

**Does Not Comply
Corrected Diskette Needed**

ERRORED SEQUENCES

869 <210> SEQ ID NO: 2

870 <211> LENGTH: 3269

871 <212> TYPE: PRT

872 <213> ORGANISM: Papaya Leaf-Distortion Mosaic Virus

874 <400> SEQUENCE: 2

875 Met Ser Ile Val Ile Gly Asp Phe Ser Ile Pro Leu Ile Cys Arg Thr

876 1 5 10 15

878 Glu Gln Ile Glu Cys Val Arg Leu Val Pro Gly Thr Arg Val Glu Glu

879 20 25 30

881 Val Lys Thr Ile Lys Lys Val Leu Lys Thr His Tyr Gln Glu Ile Thr

882 35 40 45

884 Leu Gly Cys Thr Asp Arg Cys Ala Gly Leu Ser Ala Tyr Thr Lys Thr

885 50 55 60

887 Ser Leu Lys Arg Ala Ile Lys Glu Lys Asp Leu Thr Ala Ser Gly Ser

888 65 70 75 80

890 Cys Phe His Cys Gly Leu Arg Ala Gln Ile Gly Glu Gly Arg Lys Arg

891 85 90 95

893 Val Glu Leu Ala Pro Ile Ser Val Met Glu Asp Val Glu Thr Val Glu

894 100 105 110

896 Gln Val Leu Val Pro Cys Met Val Glu Glu Lys Tyr Tyr Lys Glu Val

897 115 120 125

899 Ser Asn Phe Gln Lys Ala Thr Leu Ile Asp Lys Pro Lys Leu Thr Ile

900 130 135 140

902 Ala Pro Val Leu Met Ala Gln Pro Ala Gln Val Pro Arg Pro Ala Val

903 145 150 155 160

905 Phe Asn Glu Ile Arg Lys Val His Glu Glu Met Lys Ser Gln Thr Ser

906 165 170 175

908 Glu Asn Lys Val Leu Glu Glu Glu Thr Gln Cys Ala Ser Asp Ala Ala

909 180 185 190

911 Leu His His Leu Asp Asp Val His Ala Cys Arg Ala Arg Ala Gln Val

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912          195          200          205
914 Gly Ile Glu Arg Ile Leu Ala Arg His Ala Arg His Arg Ile Glu Ala
915          210          215          220
917 Arg Gln Gln Val Glu Glu Glu Gln Ser Glu Ala Leu Ala Ala Phe Glu
918 225          230          235          240
920 Ser Phe Phe Asn Gln Thr His Arg Glu Asp Arg Tyr Glu Gly Lys Val
921          245          250          255
923 Leu Thr Ile Arg Asn Gly Ile Thr Gly Trp Phe Glu Pro Asn Arg Asn
924          260          265          270
926 Asp Ile Lys Asn Ala Ala Arg Arg Arg Lys Arg Ala Asn Lys Lys Ile
927          275          280          285
929 Pro Phe Val Ala Arg Glu Asn Asp Val Ala Arg Ile Glu Thr His Glu
930          290          295          300
932 Pro Asn Val Lys Glu Glu Thr Lys Asp Val Glu Glu Ala Thr Asp Thr
933 305          310          315          320
935 Tyr Thr Phe Lys Lys Gln Arg Asn Asp Lys Lys Arg Val Leu Lys Glu
936          325          330          335
938 Asn Val Ser Leu Ser Met Ala Arg Ile Asn Glu Leu Val Arg Cys Val
939          340          345          350
941 Thr Lys Leu Cys Arg Lys Asp Ser Lys Glu Leu Glu Phe Ile Gly Lys
942          355          360          365
944 Arg Gly Ser Leu Arg Val Gln Cys Thr Lys Asn Cys Gly Ser Arg Val
945          370          375          380
947 Ile Leu Arg His Leu Arg Gly Glu Leu Arg Arg Lys Asp Cys Tyr Trp
948 385          390          395          400
950 Asp Arg Ile Ile Glu Asn Phe Phe Glu Ile Ala Ala Ala Lys Leu Gln
951          405          410          415
953 Asn Lys Asn Leu Asn Asn Asn Glu Ser Val Arg Arg Gly His Ser Gly
954          420          425          430
956 His Ile Ile Gln Tyr Asp Lys Phe Arg Gly Leu Ser Gly Arg His Phe
957          435          440          445
959 Gly Ser Tyr Ile Ile Val Arg Gly Ser Met Asp Gly Arg Ile Ile Asp
960          450          455          460
962 Ala Arg Ser Lys Ile Thr His Ser Val Met Ile Asn Met Thr His Tyr
963 465          470          475          480
965 Ser Asp Ala Gly Leu Ser Phe Trp Lys Gly Phe Asp Arg Gln Phe Ile
966          485          490          495
968 Asp Ile Arg Asp Arg Pro Lys Asn Ala His Glu Cys Lys Ala Thr Ile
969          500          505          510
971 Asn Val Glu Glu Cys Gly Glu Met Ala Ala Ile Val Asn Gln Leu Leu
972          515          520          525
974 Phe Pro Met Trp Lys Ile Thr Cys Thr Gln Cys Gly Glu Leu Leu Glu
975          530          535          540
977 Met Leu Ser Gln Glu Glu Glu Leu Glu Ser Phe Arg Arg Lys Arg Ser
978 545          550          555          560
980 Gln Leu Ala Ser Lys Leu Ser Ser Leu His Ile Lys Phe Pro Tyr Val
981          565          570          575
983 Asp His Phe Leu Asn Arg Tyr Glu Asn Ser Leu Asn Arg Met Asn Thr
984          580          585          590

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986 Asn Phe Asp Ala His Lys Gln Ile Ala Gln Ile Ile Gly Ser Arg Lys
987          595                      600                      605
989 Glu Ile Pro Phe Ser Asn Leu Glu His Leu Asn Glu Leu Leu Ile Lys
990      610                      615                      620
992 Ser Asp Lys Leu Val Ser Glu Asp Phe Tyr Glu Met Ser Gln Cys Leu
993 625                      630                      635                      640
995 Leu Glu Leu Thr Arg Trp His Lys Asn Arg Ser Asp Ser Phe Lys Lys
996                      645                      650                      655
998 Gly Glu Ile His His Phe Arg Asn Lys Met Ser Gly Lys Ala Gln Phe
999          660                      665                      670
1001 Asn Phe Ala Leu Met Cys Asp Asn Gln Leu Asp Lys Asn Gly Asn Phe
1002          675                      680                      685
1004 Val Trp Gly Glu Arg Gly Tyr His Ala Lys Arg Phe Phe Leu Asn Phe
1005      690                      695                      700
1007 Phe Glu Lys Val Asp Ser Thr Asp Gly Tyr Lys Lys His Ile Met Arg
1008 705                      710                      715                      720
1010 Val Asn Pro Asn Gly Thr Arg Gln Thr Ala Ile Gly Lys Leu Ile Leu
1011          725                      730                      735
1013 Ser Thr Asp Pro Ser Thr Leu Arg Gln Gln Met Lys Gly Ser Pro Ile
1014          740                      745                      750
1016 Thr Arg Val Pro Val Gly Lys Tyr Cys Thr Ser Lys Arg Asp Gly Cys
1017          755                      760                      765
1019 Tyr Val Tyr Pro Ala Cys Cys Val Thr Met Glu Asp Gly Thr Pro Leu
1020      770                      775                      780
1022 Phe Ser Asp Ile Lys Met Pro Thr Lys Asn His Leu Val Ile Gly Asn
1023 785                      790                      795                      800
1025 Ser Gly Asp Pro Lys Tyr Val Asp Val Pro Ser Ser Ser Ser Asp Met
1026          805                      810                      815
1028 Ile Val Ala Lys Glu Gly Tyr Cys Tyr Leu Asn Ile Phe Leu Ala Met
1029          820                      825                      830
1031 Leu Leu Asn Val Asn Glu Ser Glu Ser Lys Ser Phe Thr Lys Lys Val
1032      835                      840                      845
1034 Arg Asp Ile Ile Val Pro Arg Leu Gly Gln Trp Pro Ser Leu Ile Asp
1035      850                      855                      860
1037 Val Ala Thr Glu Cys Tyr Phe Leu Ser Ala Phe His Pro Glu Thr Lys
1038 865                      870                      875                      880
1040 Asn Ala Glu Leu Pro Arg Ile Leu Val Asp His Thr Ser Lys Cys Met
1041          885                      890                      895
1043 His Val Ile Asp Ser Tyr Gly Ser Leu Asp Thr Gln Phe His Val Leu
1044          900                      905                      910
1046 Lys Ala Asn Thr Val Ser Gln Leu Ile Lys Phe Ala Asp Asn Asp Leu
1047          915                      920                      925
1049 Asp Ser Glu Leu Lys His Tyr Leu Val Gly Gly Asp Leu His Ser Lys
1050      930                      935                      940
1052 Gln Ala Pro Gln Cys Ser Ile Lys Leu Leu Cys Lys Cys Ile Tyr Arg
1053 945                      950                      955                      960
1055 Pro Lys Leu Met Arg Gln Cys Ile Glu Glu Glu Pro Phe Leu Leu Ile
1056          965                      970                      975
1058 Leu Ala Cys Ile Ser Pro Gly Val Leu Leu Ala Leu Tyr Asn Ser Gln

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1059          980          985          990
1061 His Leu Glu Leu Ala Leu Lys Tyr Trp Met Ser Lys Gln Gln Ser Val
1062          995          1000          1005
1064 Ala Ala Leu Phe Ala Met Ile His Gly Leu Ala Ala Lys Val Thr Val
1065          1010          1015          1020
1067 Ala Gln Thr Leu Asn Glu Gln Arg Leu Ile Leu Glu Arg Gly Ala Arg
E--> 1068 025          1030          1035          1040
1070 Asn Leu Ile Ser Val Met Glu Thr Ile His Met Thr Ser His Ser Tyr
1071          1045          1050          1055
1073 Gln Pro Ala Leu Leu Gln Leu Gln Val Met Ala Asn Arg Arg Asp Met
1074          1060          1065          1070
1076 Asn Ser Thr Leu Asp Leu Ala Gly Phe Ser Ile Leu Gln Ser Glu Asp
1077          1075          1080          1085
1079 Ser Met Tyr Trp Met Glu Lys Ser Tyr Leu Met Glu Leu Glu Asp Ser
1080          1090          1095          1100
1082 Trp Asn Asp Leu Lys Trp Leu Glu Lys Leu Gln Glu Met Trp Arg Leu
E--> 1083 105          1110          1115          1120
1085 Ser Lys Tyr Ser Ile Ser Gly Ile Ser Gln Leu Ser Met Lys Gly Ala
1086          1125          1130          1135
1088 Thr Asp Leu Gly Gly Arg Tyr Ser Val Ser Ala Lys Gln Phe Ile Thr
1089          1140          1145          1150
1091 Ser Val Met Lys Pro Val Lys Lys Ser Cys Val Lys Ala Arg Asp Thr
1092          1155          1160          1165
1094 Cys Lys Glu Val Ile Ile Asn Thr Thr Ser Trp Thr Phe Arg Ala Thr
1095          1170          1175          1180
1097 Phe Ser Leu Cys Arg Trp Cys Leu Pro Asp Cys Leu Lys Phe Ile Asn
E--> 1098 185          1190          1195          1200
1100 Met Leu Ile Val Ile Ser Leu Ile Leu Ser Ile Trp His Ser Ala Asn
1101          1205          1210          1215
1103 Ser Ile Ser Phe Asp Tyr Ala Gln Met Lys Arg Glu Lys Gln Val Asn
1104          1220          1225          1230
1106 Ile Glu Lys Val Leu Met Asn Asn Leu Val Ala Leu His Lys Glu Gln
1107          1235          1240          1245
1109 Ile Lys Ile Asn Pro Asp Leu Thr Lys Glu Glu Phe Lys Glu Tyr Ile
1110          1250          1255          1260
1112 Ala Arg Ser Arg Pro Glu Leu Ile Ala Leu Val Asn Lys Glu Leu Gln
E--> 1113 265          1270          1275          1280
1115 Glu Glu Val Asp His Gln Ala Lys Arg Lys Gly Glu Gln Asn Leu Glu
1116          1285          1290          1295
1118 Lys Ile Ile Ala Phe Val Ala Leu Val Met Met Ile Phe Asp Ser Glu
1119          1300          1305          1310
1121 Lys Ser Asp Cys Val Tyr Lys Thr Leu Asn Lys Leu Arg Asn Leu Val
1122          1315          1320          1325
1124 Ala Thr Cys Asp Glu Pro Val Ala His Gln Ser Leu Asp Asp Ile Gln
1125          1330          1335          1340
1127 Asp Ile Leu Thr Asp Lys Glu Thr Thr Ile Asp Phe Asp Leu Asp Cys
E--> 1128 345          1350          1355          1360
1130 Glu Gly Ser Lys Val Thr Glu Phe Lys Glu Met Asn Phe Ala Ala Trp
1131          1365          1370          1375

```

When an amino acid number 1000 or greater, up to 9,999, lands on the left-hand margin. The first number in the series must be placed under the first letter of the amino acid. Example:
Ala
1025

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1133 Trp Glu Lys Gln Leu Gln Cys Asp Arg Val Val Pro His Tyr Arg Thr
1134          1380          1385          1390
1136 Thr Gly Lys Phe Ile Glu Phe Thr Arg Glu Ser Cys Val Ser Val Ser
1137          1395          1400          1405
1139 Asn Thr Ile Ser His Ala Pro Glu Lys Glu Trp Ile Val Arg Gly Gly
1140          1410          1415          1420
1142 Val Gly Ser Gly Lys Ser Thr Gly Leu Pro Phe Ala Leu Ser Ser Lys
E--> 1143 425          1430          1435          1440
1145 Gly Ala Val Leu Met Leu Glu Pro Thr Arg Pro Leu Ala Glu Asn Val
1146          1445          1450          1455
1148 Ser Arg Gln Leu Arg Gln His Pro Phe Tyr Ala Asn Pro Thr Leu Arg
1149          1460          1465          1470
1151 Met Arg Gly Met Ser Ser Phe Gly Ser Ser Asn Ile Cys Ile Met Thr
1152          1475          1480          1485
1154 Ser Gly Phe Ala Phe Asn Tyr Phe Ala Asn Asn Pro Leu Lys Leu Ser
1155          1490          1495          1500
1157 Asp Phe Glu Phe Val Ile Asp Glu Cys His Val Leu Asp Ser Asn
E--> 1158 505          1510          1515          1520
1160 Ala Met Ala Phe Val Cys Leu Leu Lys Glu His Asn Tyr Asp Gly Lys
1161          1525          1530          1535
1163 Leu Leu Lys Val Ser Ala Thr Pro Gln Gly Arg Glu Cys Glu Phe His
1164          1540          1545          1550
1166 Thr Gln His Pro Val Ser Ile His Ile Glu Glu Gln Leu Ser Phe Gln
1167          1555          1560          1565
1169 Ala Phe Cys Glu Ala Gln Gly Thr Gly Ser Ala Arg Asp Val Ile Asn
1170          1570          1575          1580
1172 Lys Gly Asp Asn Ile Leu Val Tyr Val Ala Ser Tyr Asn Glu Val Asp
E--> 1173 585          1590          1595          1600
1175 Gln Leu Ser Lys Met Leu Gly Asp Lys Gly Tyr Leu Val Thr Lys Val
1176          1605          1610          1615
1178 Asp Gly Arg Thr Met Lys Ile Gly Ser Thr Asp Ile Val Thr Lys Gly
1179          1620          1625          1630
1181 Ser Ser Gln Lys Lys His Phe Ile Val Ala Thr Asn Ile Ile Glu Asn
1182          1635          1640          1645
1184 Gly Val Thr Leu Asp Val Asp Val Val Val Asp Phe Gly Leu Lys Val
1185          1650          1655          1660
1187 Thr Ala Glu Ile Asp Tyr Asp Asn Arg Cys Val Asn Tyr Thr Lys Thr
E--> 1188 665          1670          1675          1680
1190 Ser Ile Ser Tyr Gly Glu Arg Ile Gln Arg Leu Gly Arg Val Gly Arg
1191          1685          1690          1695
1193 His Lys Lys Gly His Ala Met Arg Ile Gly Thr Thr Ile Lys Gly Leu
1194          1700          1705          1710
1196 Ile Glu Ile Pro Ser Leu Val Ala Thr Gln Ala Ala Phe Gln Cys Phe
1197          1715          1720          1725
1199 Thr Tyr Gly Leu Pro Val Met Thr Gln Gly Val Ser Val Asn Ser Leu
1200          1730          1735          1740
1202 Ser Asn Cys Thr Val Arg Gln Ala Arg Val Met Ser Arg Phe Glu Leu
E--> 1203 745          1750          1755          1760
1205 Pro Pro Tyr Phe Met Ala Ser Leu Val Tyr His Asp Gly Ser Met His

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1206          1765          1770          1775
1208 Pro Glu Ile His Lys His Leu Ile Pro Tyr Lys Leu Asp Glu Ser Glu
1209          1780          1785          1790
1211 Ile Gln Leu Ser Ala Met Ala Phe Asn Phe Thr Val Thr Ser Ile Trp
1212          1795          1800          1805
1214 Leu Asp Cys Lys Phe Tyr Asp Ser Ile Gly Ile His Leu Asp Leu Pro
1215          1810          1815          1820
1217 Arg Glu Ala Lys Ile Pro Phe His Cys Arg Glu Phe Pro Asp Met Lys
E--> 1218 825          1830          1835          1840
1220 Tyr Arg His Leu Trp Glu Asp Ile Leu Lys Ile Lys Ser Ile Asn Cys
1221          1845          1850          1855
1223 Phe Gly Arg Met Ser Val Val Ser Ala Thr Lys Val Ala Tyr Thr Leu
1224          1860          1865          1870
1226 Lys Thr Asp Ile His Ser Ile Gly Lys Thr Leu Gly Tyr Ile Asp Ala
1227          1875          1880          1885
1229 Leu Leu Gln Glu Glu Tyr Arg Lys Gln His His Phe Lys Ala Met Thr
1230          1890          1895          1900
1232 Ser Asn Ala Cys Ser Gly Asn Thr Phe Ser Met Leu Ser Ile Ala Asn
E--> 1233 905          1910          1915          1920
1235 Ala Ile Arg Asn His Tyr Ala Lys Asp Tyr Thr Ala Gly Asn Ile Gln
1236          1925          1930          1935
1238 Lys Leu Gln Ala Ala Lys Asn Gln Ile Leu Glu Phe Val Asn Leu Asn
1239          1940          1945          1950
1241 Leu Asp Pro Ser Ala Lys Cys Gly Phe Gln Glu Phe Gly Ala Leu Glu
1242          1955          1960          1965
1244 Leu Val Thr His Gln Ser Arg Gln Glu Ile Ser Lys Phe Leu Asn Leu
1245          1970          1975          1980
1247 Arg Gly Lys Trp Asn Lys Ser Leu Ile Thr Arg Asp Ile Leu Val Leu
E--> 1248 985          1990          1995          2000
1250 Leu Gly Val Thr Ile Gly Gly Phe Trp Met Ile Trp Asp Lys Phe Lys
1251          2005          2010          2015
1253 Ser Asn Ile Glu Glu Val His His Glu Gly Lys Arg Lys Thr Gln Lys
1254          2020          2025          2030
1256 Leu Lys Phe Arg Asp Ala Arg Asp Lys Lys Met Gly Arg Glu Val Tyr
1257          2035          2040          2045
1259 Gly Asp Asp Gly Thr Ile Glu His Tyr Phe Gly Ser Ala Tyr Val Lys
1260          2050          2055          2060
1262 Arg Gly Ala Val Lys Gly Gln Lys Arg Gly Met Gly Glu Lys Ser Arg
E--> 1263 065          2070          2075          2080
1265 Arg Phe Val Ser Met Tyr Gly Val Asn Leu Glu Asp Phe Ala Phe Ile
1266          2085          2090          2095
1268 Arg Tyr Ile Asp Pro Ile Thr Gly Ala Thr Arg Asp Glu Ser Pro Leu
1269          2100          2105          2110
1271 Thr Asp Val Glu Leu Val Gln Ala His Phe Gly Glu Ile Arg Asp Lys
1272          2115          2120          2125
1274 Met Leu Asp Glu Gly Leu Ile Asp Arg Gln His Ile Leu Asn Lys Pro
1275          2130          2135          2140
1277 Gly Leu Thr Ala Tyr Leu Val Lys Asp Gly Val Lys Ser Ile Met Lys
E--> 1278 145          2150          2155          2160

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1280 Val Asp Leu Gln Pro His Asn Pro Leu Leu Ile Cys Lys Asn Lys Ala
 1281 2165 2170 2175
 1283 Thr Ile Ala Gly Phe Pro Glu Lys Glu Phe Val Leu Arg Gln Thr Asp
 1284 2180 2185 2190
 1286 Lys Ala Tyr Glu Val Ser Arg Glu Glu Leu Pro Glu Arg Asn Glu Asp
 1287 2195 2200 2205
 1289 Val Ser Phe Glu Gly Ala Ser Ser Val Lys Gly Leu Arg Asp Tyr Asn
 1290 2210 2215 2220
 1292 Gly Val Ala Ser Ala Ile Cys Gln Leu Thr Asn Asn Ser Asn Gly Arg
 E--> 1293 225 2230 2235 2240
 1295 Ser Thr Thr Thr Tyr Gly Val Gly Phe Gly Ser Tyr Ile Ile Val Asn
 1296 2245 2250 2255
 1298 Arg His Leu Phe Lys Glu Asn Asn Gly Asn Leu Leu Ile Lys Ser Thr
 1299 2260 2265 2270
 1301 His Gly Asn Phe Asn Ile Arg Asn Ser Lys Gln Ile Lys Val Val Gly
 1302 2275 2280 2285
 1304 Val Glu Asp Arg Asp Ile Ala Ile Leu Gln Met Pro Lys Asp Phe Pro
 1305 2290 2295 2300
 1307 Pro Phe Ala Gln Arg Leu Arg Phe Arg Asn Pro Ile Val Gly Glu Ser
 E--> 1308 305 2310 2315 2320
 1310 Ile Cys Leu Val Gly Asn Thr Phe Gln Glu Lys Tyr Asn Ala Ser Ile
 1311 2325 2330 2335
 1313 Val Ser Glu Thr Ser Lys Thr Phe Pro Arg Val Glu Gly Ser Phe Trp
 1314 2340 2345 2350
 1316 Lys His Trp Ile Asn Thr Thr Glu Gly His Cys Gly Leu Pro Leu Val
 1317 2355 2360 2365
 1319 Ser Val Thr Asp Gly Phe Ile Val Gly Ile His Ser Leu Met Ser His
 1320 2370 2375 2380
 1322 Lys Tyr Asp His Asn Tyr Phe Ser Asn Phe Asp Asp Ala Phe Glu Gly
 E--> 1323 385 2390 2395 2400
 1325 Asp Tyr Ile Asn Lys Leu Lys Glu Leu Lys Trp Glu Gln Asn Trp Thr
 1326 2405 2410 2415
 1328 Tyr Asn Val Asn Thr Val Ser Trp Gly Asn Met Lys Leu Gln Asp Ser
 1329 2420 2425 2430
 1331 Ala Pro Cys Lys Glu Phe Lys Thr Thr Lys Leu Ile Ser Asp Leu Cys
 1332 2435 2440 2445
 1334 Thr Glu Pro Val Cys Ala Gln Ser Ser Asn Gln Val Arg Trp Leu Tyr
 1335 2450 2455 2460
 1337 Asn Gln Leu Glu Gly Asn Leu Lys Ala Val Ala Thr Ile Pro Asn Asn
 E--> 1338 465 2470 2475 2480
 1340 Phe Val Thr Lys His Ile Val Lys Gly Arg Cys Lys Leu Phe Glu Leu
 1341 2485 2490 2495
 1343 Tyr Leu Gln Thr Arg Ser Glu Ala Asn Glu Phe Phe Lys Pro Leu Met
 1344 2500 2505 2510
 1346 Gly Phe Tyr Gly Lys Ser Gly Leu Asn Lys Glu Ala Tyr Ile Lys Asp
 1347 2515 2520 2525
 1349 Leu Phe Lys Tyr Ser Ser Glu Ile Pro Ile Gly Glu Val Asp Thr Glu
 1350 2530 2535 2540
 1352 Arg Phe Glu Asp Ala Val Gly Gln Val Ile Glu Ile Met Met Gln Trp

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E--> 1353 545          2550          2555          2560
1355 Asn Phe Arg Glu Cys Lys Tyr Ile Thr Asp Cys Asp Gln Ile Phe Glu
1356          2565          2570          2575
1358 Ser Leu Asn Met Lys Ala Ala Val Gly Ala Leu Tyr Ser Gly Lys Lys
1359          2580          2585          2590
1361 Lys Ala Tyr Phe Glu Asn Ser Thr Phe Asp Asp Arg Asn His Leu Leu
1362          2595          2600          2605
1364 Gln Leu Ser Cys Leu Arg Leu Phe Lys Gly Asp Leu Gly Ile Trp Asn
1365          2610          2615          2620
1367 Gly Ser Leu Lys Ala Glu Leu Arg Pro Ile Glu Lys Val Glu Ala Asn
E--> 1368 625          2630          2635          2640
1370 Lys Thr Arg Thr Phe Thr Ala Ala Pro Ile Glu Thr Leu Leu Gly Gly
1371          2645          2650          2655
1373 Lys Val Cys Val Asp Asp Phe Asn Asn Gln Phe Tyr Asp Leu Asn Met
1374          2660          2665          2670
1376 Lys Cys Pro Trp Thr Val Gly Met Thr Lys Phe Tyr Cys Gly Trp Asn
1377          2675          2680          2685
1379 Asp Leu Leu Gly Lys Leu Pro Asp Gly Trp Ile Tyr Arg Asp Ala Asp
1380          2690          2695          2700
1382 Gly Ser Arg Phe Asp Ser Ser Leu Thr Pro Tyr Leu Leu Asn Ala Val
E--> 1383 705          2710          2715          2720
1385 Leu Gly Ile Arg Glu Phe Phe Met Glu Asp Trp Asp Ile Gly Val Gln
1386          2725          2730          2735
1388 Met Leu Arg Asn Leu His Thr Glu Ile Ile Tyr Thr Pro Ile Ala Thr
1389          2740          2745          2750
1391 Pro Asp Gly Thr Val Val Lys Lys Phe Arg Gly Asn Asn Ser Gly Gln
1392          2755          2760          2765
1394 Pro Ser Thr Val Val Asp Asn Thr Leu Met Val Cys Ile Cys Val Gln
1395          2770          2775          2780
1397 Tyr Ser Leu Ile Met Asn Ser Val Lys Phe Glu Asn Gln Asp Asp Val
E--> 1398 785          2790          2795          2800
1400 Cys Arg Tyr Phe Val Asn Gly Asp Asp Leu Leu Leu Ala Ile Asn Pro
1401          2805          2810          2815
1403 Lys Phe Ile His Ile Leu Asp Ser Phe Lys Val His Phe Ala Asn Leu
1404          2820          2825          2830
1406 Gly Leu Asp Tyr Asp Phe Ser His Arg Thr Lys Asp Lys Gly Glu Leu
1407          2835          2840          2845
1409 Trp Phe Met Ser His Lys Gly Val Lys Leu Asn Asp Met Tyr Ile Pro
1410          2850          2855          2860
1412 Lys Leu Glu Pro Glu Arg Val Val Ser Ile Leu Glu Trp Asp Arg Ser
E--> 1413 865          2870          2875          2880
1415 Val Lys Pro Glu His Arg Leu Glu Ala Ile Cys Ala Ser Met Ile Glu
1416          2885          2890          2895
1418 Ala Trp Gly Tyr Pro Arg Leu Ile His Glu Ile Arg Lys Phe Tyr Ala
1419          2900          2905          2910
1421 Trp Val Leu Glu Gln Ala Pro Tyr Asn His Leu Ala Ser Glu Gly Lys
1422          2915          2920          2925
1424 Ala Pro Tyr Ile Ser Glu Thr Ala Leu Lys Arg Leu Tyr Thr Cys Glu
1425          2930          2935          2940

```

See page 4

RAW SEQUENCE LISTING

DATE: 03/04/2002

PATENT APPLICATION: US/10/076,839

TIME: 14:56:13

Input Set : A:\PH-1176 (Sequence Listing).txt

Output Set: N:\CRF3\03042002\J076839.raw

1427 Glu Gly Ser Ala Asp Glu Ile Met Ser Tyr Leu Glu Met Cys Ala Ser
 E--> 1428 945 2950 2955 2960
 1430 Asp Leu Asn Glu Asp Glu Tyr Phe Asp Asp Glu Asp Val Ser His Gln
 1431 2965 2970 2975
 1433 Ser Ala Leu Asp Ala Gly Lys Pro Thr Ala Glu Asn Lys Lys Asp Asp
 1434 2980 2985 2990
 1436 Glu Glu Arg Lys Asn Lys Glu Glu Lys Gln Glu Asn Lys Asn Lys Asn
 1437 2995 3000 3005
 1439 Lys Glu Val Glu Lys Lys His Glu Lys Thr Ser Asn Ser Ala Ser Gly
 1440 3010 3015 3020
 1442 Ala Ile Val Ser Asn Asn Glu Lys Asp Lys Asp Val Asp Val Gly Ser
 E--> 1443 025 3030 3035 3040
 1445 Ser Gly Ser Phe Ile Ile Pro Arg Ile Lys Ser Ile Ser Asn Lys Leu
 1446 3045 3050 3055
 1448 Thr Met Pro Lys Val Lys Gly Lys Gly Ile Leu Asn Leu Glu Phe Leu
 1449 3060 3065 3070
 1451 Leu Gln Tyr Thr Pro Asp Gln Val Asp Ile Ser Asn Thr Arg Ala Ser
 1452 3075 3080 3085
 1454 Ile Ser Gln Phe Asn Thr Trp Tyr Asn Ala Val Lys Glu Ser Tyr Gly
 1455 3090 3095 3100
 1457 Val Ser Asp Glu Glu Met Gly Ile Ile Leu Asn Gly Leu Met Val Trp
 E--> 1458 105 3110 3115 3120
 1460 Cys Ile Glu Asn Gly Thr Ser Pro Asn Ile Asn Gly Met Trp Phe Met
 1461 3125 3130 3135
 1463 Met Gln Gly Glu Glu Gln Ile Glu Tyr Pro Leu Gln Pro Ile Val Glu
 1464 3140 3145 3150
 1466 Asn Ala Lys Pro Thr Leu Arg Gln Ile Met Ala His Phe Ser Asn Val
 1467 3155 3160 3165
 1469 Ala Glu Ala Tyr Ile Glu Lys Arg Asn Tyr Glu Lys Pro Tyr Met Pro
 1470 3170 3175 3180
 1472 Arg Tyr Gly Ile Gln Arg Asn Leu Thr Asp Met Ser Leu Ala Arg Tyr
 E--> 1473 185 3190 3195 3200
 1475 Ala Phe Asp Phe Tyr Glu Met Thr Ser Arg Thr Pro Ala Arg Ala Arg
 1476 3205 3210 3215
 1478 Glu Ala His Ile Gln Met Lys Ala Ala Ala Leu Arg Asp Ala Asn Asn
 1479 3220 3225 3230
 1481 Lys Met Phe Gly Leu Asp Gly Lys Val Gly Asn Ala Thr Glu Asn Thr
 1482 3235 3240 3245
 1484 Glu Arg His Thr Ala Asp Asp Val Asn His Asn Thr His Ala Phe Thr
 1485 3250 3255 3260
 1487 Gly Val Arg Tyr Tyr
 1488 3265
 1563 <210> SEQ ID NO: 4
 1564 <211> LENGTH: 243
 1565 <212> TYPE: PRT
 1566 <213> ORGANISM: Papaya Leaf-Distortion Mosaic Virus
 E--> 1568 <400> SEQUENCE: 2
 1569 Gly Ala Ser Ser Val Lys Gly Leu Arg Asp Tyr Asn Gly Val Ala Ser
 1570 1 5 10 15

see page 4

These numbers must
 match

RAW SEQUENCE LISTING

DATE: 03/04/2002

PATENT APPLICATION: US/10/076,839

TIME: 14:56:13

Input Set : A:\PH-1176 (Sequence Listing).txt

Output Set: N:\CRF3\03042002\J076839.raw

```

1572 Ala Ile Cys Gln Leu Thr Asn Asn Ser Asn Gly Arg Ser Thr Thr Thr
1573          20          25          30
1575 Tyr Gly Val Gly Phe Gly Ser Tyr Ile Ile Val Asn Arg His Leu Phe
1576          35          40          45
1578 Lys Glu Asn Asn Gly Asn Leu Leu Ile Lys Ser Thr His Gly Asn Phe
1579          50          55          60
1581 Asn Ile Arg Asn Ser Lys Gln Ile Lys Val Val Gly Val Glu Asp Arg
1582 65          70          75          80
1584 Asp Ile Ala Ile Leu Gln Met Pro Lys Asp Phe Pro Pro Phe Ala Gln
1585          85          90          95
1587 Arg Leu Arg Phe Arg Asn Pro Ile Val Gly Glu Ser Ile Cys Leu Val
1588          100         105         110
1590 Gly Asn Thr Phe Gln Glu Lys Tyr Asn Ala Ser Ile Val Ser Glu Thr
1591          115         120         125
1593 Ser Lys Thr Phe Pro Arg Val Glu Gly Ser Phe Trp Lys His Trp Ile
1594          130         135         140
1596 Asn Thr Thr Glu Gly His Cys Gly Leu Pro Leu Val Ser Val Thr Asp
1597 145          150          155          160
1599 Gly Phe Ile Val Gly Ile His Ser Leu Met Ser His Lys Tyr Asp His
1600          165          170          175
1602 Asn Tyr Phe Ser Asn Phe Asp Asp Ala Phe Glu Gly Asp Tyr Ile Asn
1603          180          185          190
1605 Lys Leu Lys Glu Leu Lys Trp Glu Gln Asn Trp Thr Tyr Asn Val Asn
1606          195          200          205
1608 Thr Val Ser Trp Gly Asn Met Lys Leu Gln Asp Ser Ala Pro Cys Lys
1609          210          215          220
1611 Glu Phe Lys Thr Thr Lys Leu Ile Ser Asp Leu Cys Thr Glu Pro Val
1612 225          230          235          240
1614 Cys Ala Gln
1617 1/1

```

Remove extra material at
end of file

A Use of n and / or Xaa has been detected in the Sequence Listing. Review the Sequence Listing to ensure a corresponding explanation is present in the <220> to <223> fields of each sequence using n or Xaa.

VERIFICATION SUMMARY

DATE: 03/04/2002

PATENT APPLICATION: US/10/076,839

TIME: 14:56:14

Input Set : A:\PH-1176 (Sequence Listing).txt

Output Set: N:\CRF3\03042002\J076839.raw

L:9 M:270 C: Current Application Number differs, Replaced Current Application No
L:9 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:36 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:866 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:1068 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
M:332 Repeated in SeqNo=2
L:1494 M:283 W: Missing Blank Line separator, <220> field identifier
L:1568 M:212 E: (34) Invalid or duplicate Sequence ID Number, SEQUENCE ID NOS:4 differs:2